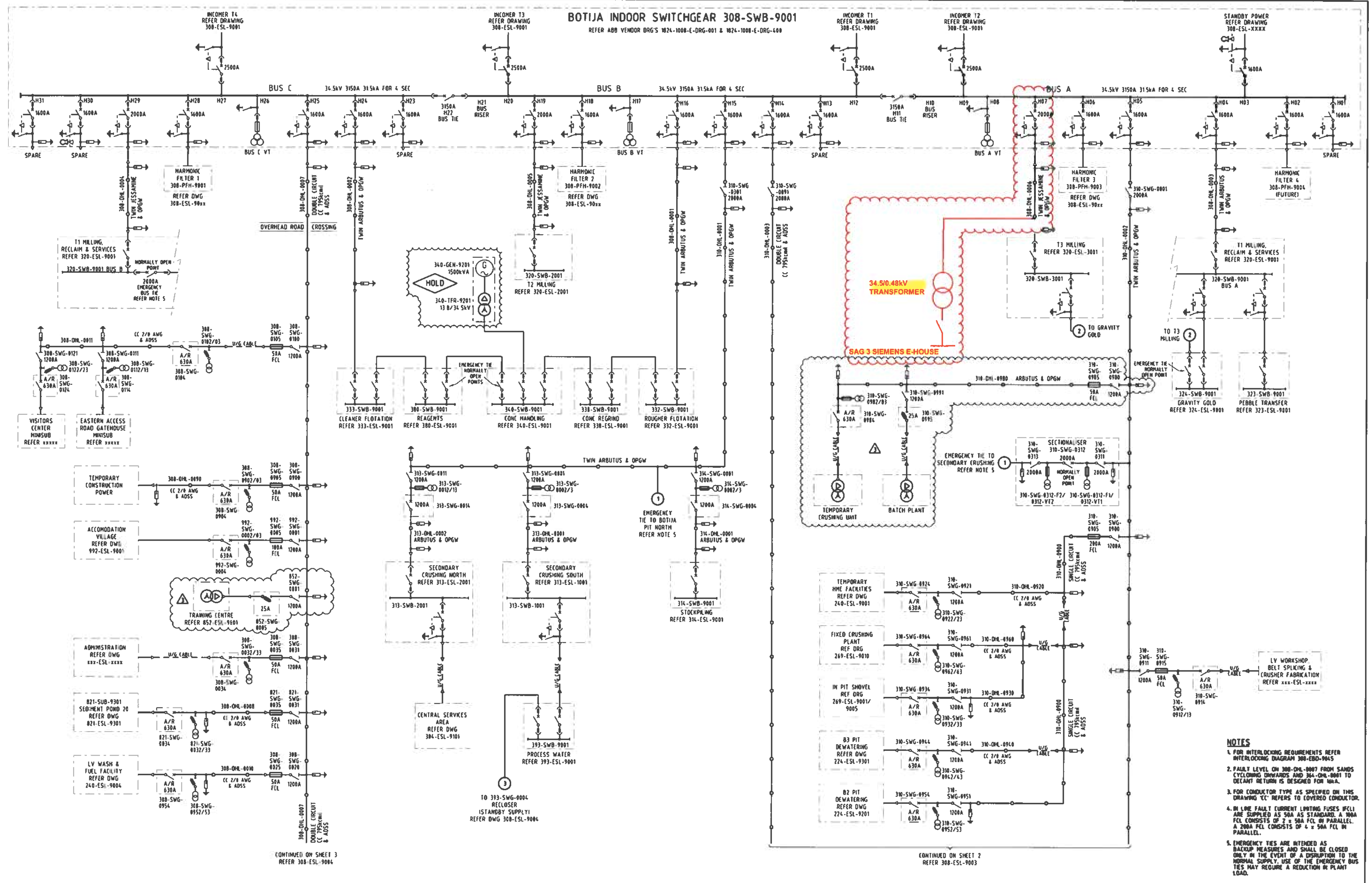
I:\Projects\C1443 Mina de Cobre Project 1824\02 Drafting\ESL SLDs\300\308-ESL-9002.dgn 5/02/2018 10:55 PM matthew.townsend


BOTIJA INDOOR SWITCHGEAR 308-SWB-9001
REFER ABB VENDOR DRG'S 1824-1008-E-DRG-001 & 1824-1008-E-DRG-400
INCOMER T4 REFER DRAWING 308-ESL-9001
INCOMER T3 REFER DRAWING 308-ESL-9001
INCOMER T1 REFER DRAWING 308-ESL-9001
INCOMER T2 REFER DRAWING 308-ESL-9001
STANDBY POWER REFER DRAWING 308-ESL-XXXX
2500A
BUS C
BUS B
BUS A
34.5kV 3150A 31.5kA FOR 4 SEC
H31 H30 H29 H28 H27 H26 H25 H24 H23
3150A H22 BUS TIE
H21 BUS RISER
H20 H19 H18 H17 H16 H15 H14 H13 H12
3150A H11 BUS TIE
H10 BUS RISER
H09 H08 H07 H06 H05 H04 H03 H02 H01
1600A
2000A
SPARE
BUS C VT
BUS B VT
BUS A VT
HARMONIC FILTER 1 308-PFH-9001 REFER DWG 308-ESL-90xx
HARMONIC FILTER 2 308-PFH-9002 REFER DWG 308-ESL-90xx
HARMONIC FILTER 3 308-PFH-9003 REFER DWG 308-ESL-90xx
HARMONIC FILTER 4 308-PFH-9004 (FUTURE)
308-OHL-0004 TWIN JESSAMINE & OPGW
308-OHL-0007 DOUBLE CIRCUIT CC 795kcmil & ADSS
308-OHL-0002 TWIN ARBUTUS & OPGW
308-OHL-0005 TWIN JESSAMINE & OPGW
308-OHL-0001 TWIN ARBUTUS & OPGW
310-OHL-0001 TWIN ARBUTUS & OPGW
310-OHL-0003 DOUBLE CIRCUIT CC 795kcmil & ADSS
308-OHL-0006 TWIN JESSAMINE & OPGW
310-OHL-0002 TWIN ARBUTUS & OPGW
308-OHL-0003 TWIN ARBUTUS & OPGW
310-SWG-0301 2000A
310-SWG-0091 2000A
310-SWG-0001 2000A
OVERHEAD ROAD CROSSING
T1 MILLING, RECLAIM & SERVICES REFER 320-ESL-9001
320-SWB-9001 BUS B
NORMALLY OPEN POINT
2000A EMERGENCY BUS TIE REFER NOTE 5
340-GEN-9201 1500kVA
HOLD
340-TFR-9201 13.8/34.5kV
320-SWB-2001
T2 MILLING REFER 320-ESL-2001
T3 MILLING REFER 320-ESL-3001
320-SWB-3001
T1 MILLING, RECLAIM & SERVICES REFER 320-ESL-9001
320-SWB-9001 BUS A
TO GRAVITY GOLD
TO T3 MILLING
34.5/0.48kV TRANSFORMER
SAG 3 SIEMENS E-HOUSE
308-OHL-0011
CC 2/0 AWG & ADSS
308-SWG-0121 1200A
308-SWG-0122/23
308-SWG-0111 1200A
308-SWG-0112/13
A/R 630A
308-SWG-0124
308-SWG-0114
308-SWG-0102/03
308-SWG-0104
U/G CABLE
308-SWG-0105
308-SWG-0100
50A FCL
1200A
VISITORS CENTER MINISUB REFER xxxxx
EASTERN ACCESS ROAD GATEHOUSE MINISUB REFER xxxxx
333-SWB-9001 CLEANER FLOTATION REFER 333-ESL-9001
380-SWB-9001 REAGENTS REFER 380-ESL-9001
EMERGENCY TIE NORMALLY OPEN POINTS
340-SWB-9001 CONC HANDLING REFER 340-ESL-9001
338-SWB-9001 CONC REGRIND REFER 338-ESL-9001
332-SWB-9001 ROUGHER FLOTATION REFER 332-ESL-9001
TEMPORARY CONSTRUCTION POWER
308-OHL-0090
308-SWG-0902/03
308-SWG-0905
308-SWG-0900
308-SWG-0904
ACCOMODATION VILLAGE REFER DWG 992-ESL-9001
992-SWG-0002/03
992-SWG-0005
992-SWG-0001
100A FCL
992-SWG-0004
TRAINING CENTRE REFER 852-ESL-9601
852-SWG-0001
25A
852-SWG-0005
ADMINISTRATION REFER DWG xxx-ESL-xxxx
308-SWG-0032/33
308-SWG-0035
308-SWG-0031
308-SWG-0034
821-SUB-9301 SEDIMENT POND 20 REFER DWG 821-ESL-9301
308-OHL-0008
821-SWG-0035
821-SWG-0031
821-SWG-0034
821-SWG-0032/33
LV WASH & FUEL FACILITY REFER DWG 240-ESL-9004
308-OHL-0010
308-SWG-0025
308-SWG-0020
308-SWG-0954
308-SWG-0952/53
CONTINUED ON SHEET 3 REFER 308-ESL-9004
TWIN ARBUTUS & OPGW
313-SWG-0011 1200A
313-SWG-0012/13
313-SWG-0014
313-OHL-0002 ARBUTUS & OPGW
313-SWG-0001 1200A
313-SWG-0002/3
313-SWG-0004
313-OHL-0001 ARBUTUS & OPGW
314-SWG-0001 1200A
314-SWG-0002/3
314-SWG-0004
314-OHL-0001 ARBUTUS & OPGW
EMERGENCY TIE TO BOTIJA PIT NORTH REFER NOTE 5
SECONDARY CRUSHING NORTH REFER 313-ESL-2001
313-SWB-2001
SECONDARY CRUSHING SOUTH REFER 313-ESL-1001
313-SWB-1001
314-SWB-9001 STOCKPILING REFER 314-ESL-9001
CENTRAL SERVICES AREA REFER DWG 384-ESL-9101
393-SWB-9001 PROCESS WATER REFER 393-ESL-9001
TO 393-SWG-0004 RECLOSER (STANDBY SUPPLY) REFER DWG 308-ESL-9004
310-OHL-0980 ARBUTUS & OPGW
310-SWG-0985
310-SWG-0980
310-SWG-0982/83
310-SWG-0984
310-SWG-0991 1200A
310-SWG-0993
TEMPORARY CRUSHING UNIT
BATCH PLANT
EMERGENCY TIE NORMALLY OPEN POINT
324-SWB-9001 GRAVITY GOLD REFER 324-ESL-9001
323-SWB-9001 PEBBLE TRANSFER REFER 323-ESL-9001
EMERGENCY TIE TO SECONDARY CRUSHING REFER NOTE 5
SECTIONALISER 310-SWG-0312 2000A
310-SWG-0313
310-SWG-0311
NORMALLY OPEN POINT
310-SWG-0312-F2/0312-VT2
310-SWG-0312-F1/0312-VT1
310-SWG-0905
310-SWG-0900
200A FCL
310-OHL-0900 SINGLE CIRCUIT CC 795kcmil & ADSS
TEMPORARY HME FACILITIES REFER DWG 240-ESL-9001
310-SWG-0924
310-SWG-0921
310-SWG-0922/23
310-OHL-0920
FIXED CRUSHING PLANT REF DRG 269-ESL-9010
310-SWG-0964
310-SWG-0961
310-SWG-0962/63
310-OHL-0960
IN PIT SHOVEL REF DRG 269-ESL-9001/9005
310-SWG-0934
310-SWG-0931
310-SWG-0932/33
310-OHL-0930
B3 PIT DEWATERING REFER DWG 224-ESL-9301
310-SWG-0944
310-SWG-0941
310-SWG-0942/43
310-OHL-0940
B2 PIT DEWATERING REFER DWG 224-ESL-9201
310-SWG-0954
310-SWG-0951
310-SWG-0952/53
310-SWG-0911
310-SWG-0915
310-SWG-0914
310-SWG-0912/13
LV WORKSHOP BELT SPLICING & CRUSHER FABRICATION REFER xxx-ESL-xxxx
CONTINUED ON SHEET 2 REFER 308-ESL-9003

NOTES

1. FOR INTERLOCKING REQUIREMENTS REFER INTERLOCKING DIAGRAM 308-EBD-9045
2. FAULT LEVEL ON 308-OHL-0007 FROM SANDS CYCLONING ONWARDS AND 364-OHL-0001 TO DECANT RETURN IS DESIGNED FOR 16kA.
3. FOR CONDUCTOR TYPE AS SPECIFIED ON THIS DRAWING 'CC' REFERS TO COVERED CONDUCTOR.
4. IN LINE FAULT CURRENT LIMITING FUSES (FCL) ARE SUPPLIED AS 50A AS STANDARD. A 100A FCL CONSISTS OF 2 x 50A FCL IN PARALLEL. A 200A FCL CONSISTS OF 4 x 50A FCL IN PARALLEL.
5. EMERGENCY TIES ARE INTENDED AS BACKUP MEASURES AND SHALL BE CLOSED ONLY IN THE EVENT OF A DISRUPTION TO THE NORMAL SUPPLY. USE OF THE EMERGENCY BUS TIES MAY REQUIRE A REDUCTION IN PLANT LOAD.

REVISIONS

REV	DESCRIPTION	DRN	CHK	ENG	DATE	REV	DESCRIPTION	DRN	CHK	ENG	DATE
3	REVISED AS NOTED	MAT	KR	OO	05.02.18						
2	REVISED AS NOTED DRAWING EXPANDED TO 308-ESL-9004	MAT	KR	OO	15.11.17						
1	REVISED AS NOTED	MAT	KR	OO	25.07.17						
0	ISSUED FOR CONSTRUCTION	MT	KR	AD	04.05.17						

REFERENCE DRAWINGS

DRAWING No.	DESCRIPTION
308-EBD-9045	TREATMENT PLANT - 34.5kV POWER DISTRIBUTION INTERLOCKING DIAGRAM - SHEET 1
308-ELA-9005	TREATMENT PLANT - 34.5kV POWER DISTRIBUTION PLAN SHEET 1

Process E&I
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DRAWN	M TOWNSEND	03.05.17
CHECKED	K REDWOOD	03.05.17
DISCIPLINE ENGINEER	G DINGLEY	04.05.17
PRINCIPAL ENGINEER	A DINGLEY	04.05.17
CLIENT		

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MINA DE COBRE PANAMA
TREATMENT PLANT
OVERALL 34.5kV POWER DISTRIBUTION
SINGLE LINE DIAGRAM OVERVIEW SHEET 1

CLIENT
MINERA PANAMA SA

SCALE		DRG. No.	CLIENT PROJECT NUMBER	REV. No.
N.T.S	A0	308-ESL-9002	1824	3

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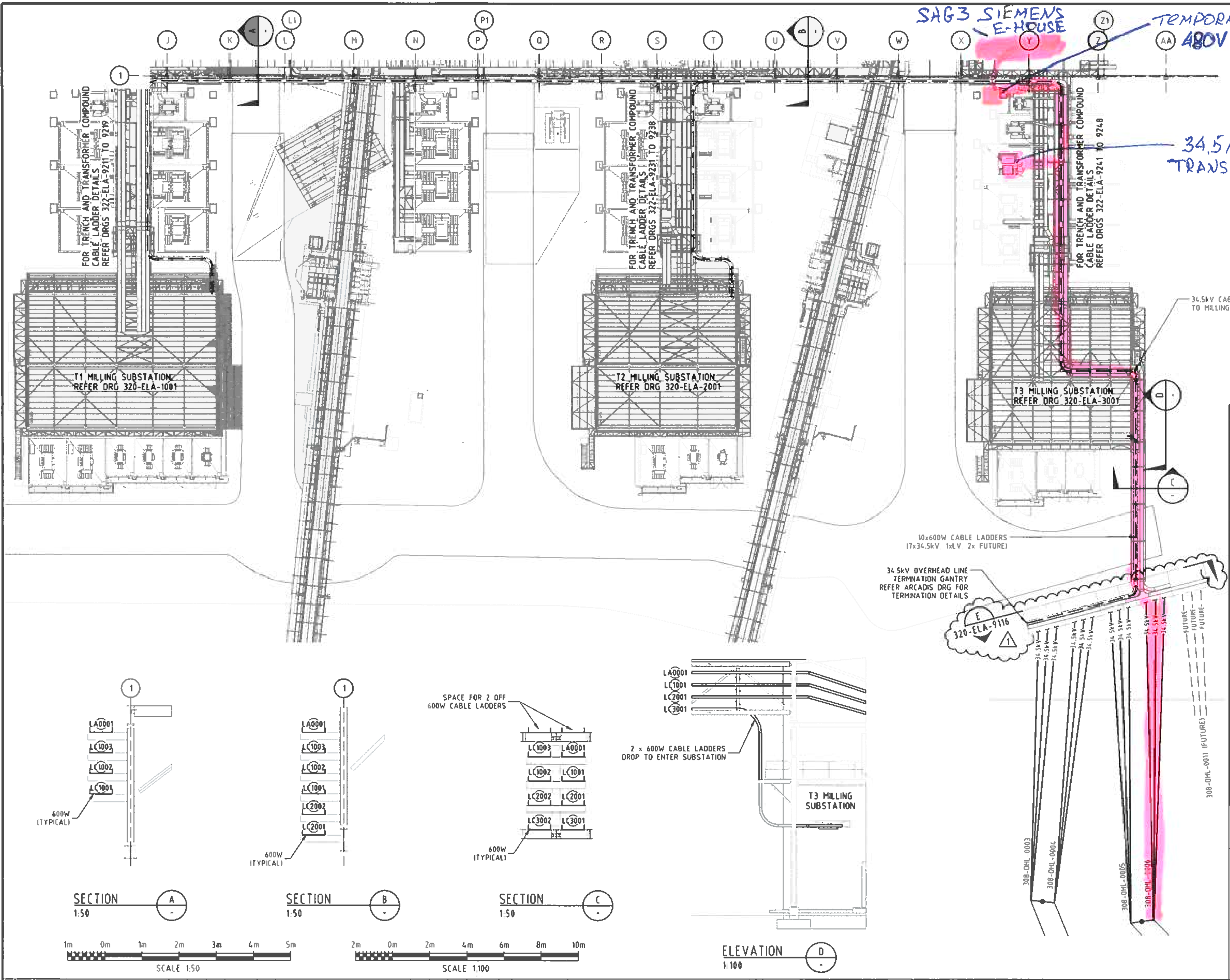
SAG3 SIEMENS E-HOUSE
TEMPORARY 480V DB
34,5/0,48kV TRANSFORMER
TRUE
PLANT
30°
J
K
L
L1
M
N
P
P1
Q
R
S
T
U
V
W
X
Y
Z
Z1
AA
A
B
1
FOR TRENCH AND TRANSFORMER COMPOUND CABLE LADDER DETAILS REFER DRGS 322-ELA-9211 TO 9219
FOR TRENCH AND TRANSFORMER COMPOUND CABLE LADDER DETAILS REFER DRGS 322-ELA-9231 TO 9238
FOR TRENCH AND TRANSFORMER COMPOUND CABLE LADDER DETAILS REFER DRGS 322-ELA-9241 TO 9248
T1 MILLING SUBSTATION REFER DRG 320-ELA-1001
T2 MILLING SUBSTATION REFER DRG 320-ELA-2001
T3 MILLING SUBSTATION REFER DRG 320-ELA-3001
34.5kV CABLE LADDERS TO MILLING SUBSTATIONS
10x600W CABLE LADDERS (7x34.5kV 1xLV 2x FUTURE)
34.5kV OVERHEAD LINE TERMINATION GANTRY REFER ARCADIS DRG FOR TERMINATION DETAILS
E
320-ELA-9116
1
34.5kV
FUTURE
308-OHL-0003
308-OHL-0004
308-OHL-0005
308-OHL-0006
308-OHL-0011 (FUTURE)
C
D
LA0001
LC1003
LC1002
LC1001
LC2002
LC2001
LC3002
LC3001
600W (TYPICAL)
SPACE FOR 2 OFF 600W CABLE LADDERS
2 x 600W CABLE LADDERS DROP TO ENTER SUBSTATION
T3 MILLING SUBSTATION
SECTION A 1:50
SECTION B 1:50
SECTION C 1:50
ELEVATION D 1:100
SCALE 1:50
SCALE 1:100

CABLE LADDER RACEWAY ID

RW ID	VOLTAGE	DESCRIPTION
LA0001	480V : I&C	PLANT FIBRE AND MISC FEEDS
LC1001	34.5kV	320-SWB-9001 BUS A INCOMER (1600A SERVICES)
LC1002	34.5kV	320-SWB-9001 BUS B INCOMER (2000A TRAIN 1)
LC1003	34.5kV	324-SWB-9001 FEEDER
LC2001	34.5kV	320-SWB-2001 INCOMER (2000A TRAIN 2)
LC2002	34.5kV	SPARE
LC3001	34.5kV	320-SWB-3001 INCOMER (2000A TRAIN 3)
LC3002	34.5kV	SPARE
LC30xx	34.5kV	FUTURE 100MTPA
LC30xx	34.5kV	FUTURE 100MTPA

RACEWAY ID NUMBERING SYSTEM

L A 1001

RACEWAY TYPE
C = CONDUIT
L = CABLE LADDER
T = CABLE TRAY

SERVICE LEVEL (OPTIONAL)
A = LOW VOLTAGE / I&C
B = MEDIUM VOLTAGE 4kV
C = MEDIUM VOLTAGE 34.5kV
G = GHD MILL CABLES

NUMBER
0001 to 0999 : GENERAL
1001 to 1999 : TRAIN 1
2001 to 2999 : TRAIN 2
3001 to 3099 : TRAIN 3
9001 to 9999 : COMMON/SERVICES

LEGEND

—230kV—	230kV TRANSMISSION LINE
—34.5kV—	34.5kV OVERHEAD POWER LINE
—34.5kV—	34.5kV OVERHEAD POWER LINE - COVERED CONDUCTOR TYPE
— — —	FUTURE 34.5kV POWER OHL
— — —	34.5kV CABLE IN LADDER/RACK
- - - -	34.5kV CABLE BURIED IN CONDUIT

6m 0m 6m 12m 18m 24m 30m
SCALE 1:300

REVISIONS

REV	DESCRIPTION	DRN	CHK	ENG	DATE	REV	DESCRIPTION	DRN	CHK	ENG	DATE
1	RE-ISSUED FOR CONSTRUCTION	JXB	KRR	NP	20.12.17						
0	ISSUED FOR CONSTRUCTION	JDS	KRR	NP	28.11.17						

REFERENCE DRAWINGS

DRAWING No.	DESCRIPTION

Process E&I
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QUALITY ENGINEERING SOLUTIONS
www.ProcessEI.com.au
Tel: +61 8 9344 6030

DRAWN	J. DA SILVA	27.11.17
CHECKED	K. REDWOOD	27.11.17
DISCIPLINE ENGINEER	N. PAGE	28.11.17
PRINCIPAL ENGINEER	A. DINGLEY	28.11.17
CLIENT		

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MINA DE COBRE PANAMA
MILLING AND RECLAIM
34.5kV INCOMING CABLE LADDER
LAYOUT

CLIENT
MINERA PANAMA S.A

SCALE 1:300 UNO
A1
DRG. No. 320-ELA-9115
CLIENT PROJECT NUMBER 1824
REV. No. 1